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REPORT OF THE EFFECTIVENESS OF PROJECT HEAD START, LUBBOCK, TEXAS. PARTS I, II, AND APPENDICES.

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WITH THE COMPLETION OF THE FIRST GRADE BY THE FIRST HEAD START CLASS IN LUBBOCK, TEXAS, THIS STUDY WAS UNDERTAKEN TO PRESENT DATA ON THE EFFECTIVENESS OF THE HEAD START PROGRAM IN IMPROVING DISADVANTAGED CHILDREN'S CHANCES FOR SCHOOL SUCCESS. TWO HUNDRED AND NINETY-FIVE URBAN AREA HEAD START CHILDREN FROM NEGRO, ANGLO-AMERICAN, AND MEXICAN-AMERICAN FAMILIES WERE COMPARED WITH A CONTROL GROUP MATCHED ON SEX, ETHNIC GROUP, AND ECONOMIC LEVEL. WHENEVER POSSIBLE, THE MATCHED PAIRS OF CHILDREN WERE IN THE SAME SCHOOL CLASSROOM SO THAT THE TEACHER COULD OBSERVE AND MAKE SUBJECTIVE EVALUATIONS OF HEAD START AND CONTROL CHILDREN ON 8 FACTORS SUCH AS PARTICIPATION, ATTENDANCE, AND EDUCATIONAL ACCOMPLISHMENT. A SOCIOLOGICAL RATHER THAN AN INDIVIDUAL APPROACH WAS USED IN MAKING THIS EVALUATION. TO MEASURE SCHOOL SUCCESS, GRADES WERE OBTAINED AND COMPARED FOR ALL CHILDREN INVOLVED. RESULTS SHOWED THAT THE CONTROL GROUP WAS SUPERIOR TO THE HEAD START GROUP BOTH AT THE END OF THE FIRST YEAR OF SCHOOL AND ALSO AT THE END OF THE SECOND SCHOOL YEAR WHEN ADDITIONAL EXAMINATIONS AND STANDARDIZED TESTS COMPARED THE 140 MATCHED PAIRS STILL AVAILABLE OUT OF THE ORIGINAL GROUP OF 295. APPENDIXES RELATED TO 1966 DATA (END OF FIRST YEAR) AND 1967 DATA (END OF SECOND YEAR) ARE INCLUDED IN THE REPORT. (MS)

U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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REPORT OF THE EFFECTIVENESS OF PROJECT HEAD START, LUBBOCK, TEXAS

PART I

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Walter J. Cartwright, Principal Investigator

Submitted to

THE OFFICE OF ECONOMIC OPPORTUNITY

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REPORT OF THE EFFECTIVENESS OF PROJECT HEAD START, LUBBOCK, TEXAS (SUMMER, 1965)*

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Objectives

Specific problems to be addressed in this report concern measurement of Project Head Start's ability to perform its manifest function of preparing disadvantaged children to profit from educational opportunities as indicated by data available on the Lubbock, Texas, program in the summer of 1965. Objective measurement of the effectiveness of Project Head Start in Lubbock can be made in terms of the grades assigned at the end of the first year of school as an indicator of "performance" in, and "adjustment" to, school work of the Head Start children as compared with non-participants of similar social characteristics. Measurement by the formal grades assigned is supplemented by a set of subjective evaluations of the children's first year in school made by their teachers in terms of a set of eight factors to be presented later. In addition, considering the various social characteristics individually as independent variables, significance of such factors on Head Start participation can be determined. Cultural traits or group affiliations that are resistant to "help" may be determined in this manner without detracting from the major aim of measuring the ability of Project Head Start to perform its manifest function of preparing the underprivileged for academic achievement. The Preliminary phase of the project here reported will deal with the analysis of such relationships on the basis of existing records prepared when the children were enrolled in Head Start and grades assigned at the end of the first year of school. A

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later phase of the investigation will include analysis of grades at the end of the second year of school, standardized tests to be administered in the Second Grade, and more detailed examination and testing of the children within the home and classroom environments.

Procedures

Analysis of the "results" of Head Start in the experience of each participating child is made in terms of comparison of each child in the sample of those participating in the local program with a child of a control group of matched socio-economic characteristics. Complete matching of the sample and control groups in terms of all known variables is impossible because the embarrassing wealth of data would produce many calls with Ns too small for statistical manipulation. Data are available on the following items:

a. ethnicity
b. income range
c. parents in home (both, father only, mother only, neither)
d. education of parents
e. working mother
f. public assistance
g. type of work of parent
h. size of household or number of children
i. care of child during year prior to Head Start experience
j. health of child
k. parental awareness of health problems
l. rural-urban residence.

The problem was handled by pairing each Head Start child with another child of the same ethnic group and sex within a common classroom. Within these guidelines, it was hoped that gross socio-economic variations would be avoided because of the tendency for socio-economic uniformity in the formation of classes, schools, and neighborhoods in which the schools are located. It was assumed that teachers would be familiar with their pupils by February and March of the school year (1965-1966), being prepared to make the pairings of Head Start and control child for the investigators. The investigators are vulnerable, therefore, to the charge that they did not exercise full control over such matching, allowing the possibility of intervening variables when the classroom teacher did not fully understand the importance of

such matching. The risk was taken, however, in order to match the children within the same classroom; it was felt that pairing within the classroom would eliminate the problem of differences of instruction, although it could not overcome the problem of teacher awareness of the child's Head Start experience. A few teachers in the local system had participated in the summer program; most had not.

Major analysis of effectiveness will be made in terms of matched pairs of Head Start with non-participating children. All data, including the socio-economic characteristics listed above, were punched on I.B.M. cards to make possible analysis of the relevance of any or all of these variables to performance.[1] Cultural traits or group affiliations which are resistant to "help" may be determined in this manner without detracting from the main goal of the investigation.

Problem

The concept of "readiness" is a basic problem of all education that is offered the beginning learner. Readiness for reading, for social experience, or for concentration at a school desk are of sufficient importance without claiming them as the focus of this study. Neither are we concerned with physical and/or psychological Maturation in themselves. Rather our concern is to view readiness for school in terms of the background from which the child comes. A cultural background characterized by ethnic differentiation, racial discrimination, language inadequacy, or economic deprivation places severe handicaps upon the child entering school. While the above conditions often create psychological problems and developmental physical problems may be produced by an inadequate diet, the analysis of the condition will be subjected to sociological rather than individual analysis.

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[1]We wish to express thanks to Dr. George K. Hutchinson and Mr. Robert T. Tomlinson of the Texas Technological College Computer Center for assistance in adapting a statistical program for use on the IBM 7040. Details on the program BMD02S for "Contingency Table Analysis" may be found in W. J. Dixon (Ed.), Biomedical Computer Programs (Los Angeles: Health Sciences Computing Facility UCLA, 1965).

Project Head Start is the recognition of conditions which seem to be handicaps for many children. A fundamental question of its effectiveness in removing these handicaps can be answered only by the analysis of data on children having the advantage of such training who in fact do better in school. Much discussion in the press by supporters of the program state that "children do better," "adjust better," and even "gain the greatest value from the medical and dental care provided last summer."[2] These statements come from enthusiaxtic local supporters; similar ones have come from other sections of the nation, as have contradictory comments also. Yet no "hard" facts have been presented to support any position; nor has it been possible to present them before now. The first Head Start class has now completed the first grade. At least a second year of school will be necessary to indicate thelasting nature of any gain they may have made. The enclosed data are offered as an answer of this question for the first year only.

From Frank Riesman's The Culturally Deprived Child[3] to Staten W. Webster's The Disadvantaged Learner,[4] there is a growing interest in the problem we have sketched above. Yet to be presented, however, is an adequate documentation of an experimental group (for which Head Start provides a good experimental situation) which can be precisely measured against a control group alike in all respects except for participation in Head Start.

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2. Local press analyses of the initial Head Start Program in Lubbock include: Temple Ponsey, "Project Head Start Passes Test in Lubbock," Lubbock Avalanche-Journal, Thursday Evening, August 19, 1965, Sec. E, p. 6. Temple Ponsey, "Head Start Program Prepares Poor Children for School Work," Lubbock Avalanche-Journal, Friday Evening, August 20, 1965, Sec. B.p. 1. Louis Cassells, "Project Head Start Has Won Ardent Public Approval," Lubbock Avalanche-Journal, Wednesday Evening, August 25, 1965, Sec. B, p. 1. Louis Cassells, "Project Head Start to Become Year-Round Program," Lubbock Avalanche-Journal, Friday Evening, December 3, 1965, Sec. A, p. 3.

3. Frank Riessman, The Culturally Deprived Child (New York: Harper and Row, 1962).

4. Staten W. Webster (Ed.).The Disadvantaged Learner (San Francisco: Chandler Publishing Company, 1966).

Population and Sample

The presence of a tri-ethnic population in Lubbock was seen as an advantage for the study of Head Start since at least some of the children of each ethnic population would be included in the initial Head Start program. Because of hesitation of the Lubbock Public Schools to enter the program until the second year, the initial summer's program was carried out by the Roman Catholic Diocese of Amarillo. Sister Mary Regina, who actively directed the program estimated that of 470 children who participated in the summer of 1965 sixty percent were Negro, thirty percent were Mexican-American, and ten percent were Anglo-American. With the end of the summer program, records on the individual children were turned over to the Lubbock Public School System for use by the schools the children would attend. By February and March of 1966, records on only 368 children could be found in the various schools. An additional 73 children for whom Head Start records existed were lost to the sample through migration out of the city or state. Of the 295 children who could be used in the study, a distribution approximating that given by Sister Mary Regina was found: 55.3 percent Negro, 37.3 percent Mexican-American, 7.1 percent Anglo-American, and .3 percent Indian.[5] The fourth category is too small for any statistical use; the Anglo-American category is too small for some statistical manipulations but will be used when possible.

It was anticipated that a rural-urban distinction would be a profitable one to bring into the analysis. Schools attended by the 295 children, however, were at Lubbock, Shallowater, Idalou and Wolfforth in essentially one urban area. The parents of only 216 children listed information as to rural-urban residence: of these all were urban except 14 (10 Farm, 3 Rural Non-Farm and one "other").

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[5]. The missing 73 Head Start children for whom a record was available consisted of 43.8 percent Negro, 50.7 percent Mexican-American, and 5.5 percent Anglo-American. The Mexican-American sub-population is influenced more by migration than the other groups.

Statistics based upon these small numbers are meaningless and therefore omitted.

The sample or experimental group is defined by the available Head Start children, numbering 295. A control group of equal size was selected by matching each participating child with a non-participant of the same sex, ethnic group, economic level, and general characteristics. Where possible, matching was done within the same classroom so that the teacher could make a comparison and evaluation of the paired children on other measures of school work. In some cases (as when more than half or even all of a classroom were children who had been in Head Start) it was not possible to find a matching child within the same classroom; a matching control child was then selected in a similar class elsewhere. In the latter case, where the paired children did not share the same teacher, the additional teacher evaluations were impossible. The matching was done midway in the school year before the question of educational achievement was raised to eliminate possible contamination by educational equivalence. Two hundred and ninety-five control children were selected to match 295 Head Start children as nearly as possible in all social characteristics. It was felt that within the limits of the study, any difference in their school experience could then be attributed to the presence of Head Start training.

Hypotheses

Five major hypotheses were stated for testing on the basis of the data from the experimental and control groups.

I. Children who have had Head Start training will have "better performance" in school and/or "better adjustment" to classroom discipline than equivalent pupils who have not had such training. It is assumed that such training produces readiness to classroom participation that will be indicated by higher grades and fewer discipline problems for at least the first few years of school. Obviously, many middle class homes produce a greater readiness of this type than underpriviledged homes even with a summer program to help the latter. To avoid the effects of such cross-class bias, the pairing of pupils was made a part of the test.

II. There will be a larger differential between matched Negro Head Start children and non-Head Start children than between matched Mexican-American Head Start children and non-Head Start children. It is assumed that the Mexican-American children of the Lubbock area come from families which are functionally illiterate in both English and Spanish and have a greater cultural adjustment to make to school than do the Negro children. While the latter are largely underpriviledged, they come from families possessing an Anglo-Saxon culture, gaining thereby some tools to grasp the advantages of pre-school preparation.

III. In all groups, there will be a positive relationship between educational level of parents and success of Head Start children. Parents with higher levels of education are more likely to use books and show an affirmative evaluation for reading and other forms of school experience which create, in the primary socialization of the child, an anticipation and even eagerness for school experience, reading of books, etc.

IV. In all groups there will be a positive relationship between the socio-economic indicators and success of Head Start children. Economic position is not assumed to be causal in this relationship but is felt to be a part of an interrelated set of cultural factors which depress adjustment and achievement in school.

V. Significant differences will be found when the sample is divided in ethnic terms, with Anglo (white) students performing best and Negro students second; the Mexican-American students are expected to rank a poor third even with Head Start assistance. The low performance of the Mexican-American children is predicted on the basis of a concentration of all the factors associated with achievement, especially cultural isolation, low economic position, and low educational level of the parents. The 1960 Census showed that the Mexican-American adult in Lubbock had a median educational level of 3.1 years of schooling, lowest

of all Metropolitan Areas of the nation.[6]

Test of Hypothesis I and V

The major hypothesis (I) may be restated in operational terms quite simply: the Head Start child will make better grades in his first year of school than the paired control child. Such grades were obtained for the 295 pairs of children. The results, however, do not support the hypothesis. In compairing the grades of two children, three results are possible: The Head Start child may surpass, the two may be equal in performance, or the control child may surpass the Head Start child. Thirty-nine and one tenth percent of the Head Start children did better; 17.3 percent were equal; and 43.5 percent were surpassed by the control child. Assigning a value of one, two, and three for the above categories in the order listed (as was done for statistical analysis), the Mean score was 2.0441 with a Standard error of the Mean of .0529. While this value tends to be in the direction of superiority of the control child (and resultant inferiority of the Head Start child) the value is not as much greater than the score of no difference as the standard error and hence must be accepted as inconclusive. The hypothesis is neither proved nor disproved.

For further examination these findings are divided in ethnic terms in Table I. All ethnic categories show the Head Start child doing poorer work than the control child with whom he is paired. The differences are not statistically significant but the disadvantage of the Head Start child is most evident in the Anglo-American category, contrary to the prediction of Hypothesis V, concerning which more will be said below.

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6. See W. G. Steglich, "Some Characteristics of Long- vs. Short-Distance Migrants," in Proceedings of the Southwestern Sociological Association, Vol. XIV (1964), pp. 20 ff.

Another division of the findings in terms of sex in Table II, however, reveals a distinction which is statistically significant at the .05 level. Of the male Head Start children, 42.9 percent were superior, 20.2 percent were equal, and 36.8 percent were inferior. The boys showed a slight advantage from Head Start training. Of the girls, however, 34.1 percent were superior, 14.4 percent were equal, and 51.5 percent were inferior. Nearly two out of three of the girls showed no gain from Head Start training.

When the ethnic categories are separately examined in terms of sex and Head Start achievement, further significant difference are revealed. (See Table III.) The contrast between the boys and girls is most prominent with the Negro sub-sample in which the boys show a gain from Head Start which the girls do not (significant at the .02 level). Among the Negro boys, 49.4 percent show a superiority of the Head Start child, 17.2 percent show no difference, and 33.3 percent show the superiority of the control child. For the girls the relationships are reversed with 31.6 percent of the Head Start children superior, 13.2 percent equal, and 55.3 percent inferior.

Other studies have shown that the Negro girl in an American environment exhibits a pattern of motivation and aspiration which is different from that found among the white youth. Lott and Lott found among their sample of High School Seniors that Negro girls scored in a "male" direction (that is, high or low according to the particular scale).[7]

> All these findings, considered together, suggest that the usual sex-typed goal orientations found among white youth do not exist as clearly among Negro youth. The greater similarity between

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7. Albert J. Lott and Bernice E. Lott, Negro and White Youth. (New York: Holt, Rinehart and Winston, 1963), pp. 38-48 and pp. 71-79.

TABLE I

ETHNIC DISTRIBUTION OF HEAD START CHILDREN IN LUBBOCK
BY SCHOOL ACHIEVEMENT WHEN COMPARED WITH CONTROL CHILDREN

Ethnic Category	Relative Achievement in School of Matched Children			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Anglo-American	3 (14.3%)	8 (38.1%)	10 (47.6%)	21 (100%)
Mexican-American	45 (40.9%)	18 (16.4%)	47 (42.7%)	110 (100%)
Negro	67 (41.1%)	25 (15.3%)	71 (43.6%)	163 (100%)
American Indian	0 ( )	1 (100%)	0 ( )	1 (100%)
All Categories	115 (39.0%)	52 (17.6%)	128 (43.4%)	295 (100%)

(For statistical analysis, the Indian category is omitted.)

$\chi^2 = 9.3144$

$p > .10$, 4 df

(When categories are collapsed to eliminate samll calls, the results are similar.)

TABLE II

SEX DISTRIBUTION OF HEAD START CHILDREN IN LUBBOCK
BY SCHOOL ACHIEVEMENT WHEN COMPARED WITH CONTROL CHILDREN

Sex	Relative Achievement in School of Matched Children			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Male	70 (42.9%)	33 (20.2%)	60 (36.8%)	163 (99.9%)
Female	45 (34.1%)	19 (14.4%)	68 (51.5%)	132 (100%)
All Children	115 (39.0%)	52 (17.6%)	128 (43.4%)	295 (100%)

$\chi^2 = 6.5184$

$p < .05$, 2 df

> Negro boys and girls may be related to less sharply delineated and differentiated sex roles of father and mother within Negro, than within white, families. The relative instability of the Negro home, the higher probability that a Negro mother is contributing to the family income by outside employment, and the higher probability that the Negro father is absent from the home, contribute to the lesser likelihood that the father and mother roles in the Negro home are as distinct as they are in the average white home. Since the availability of appropriate adult models is generally considered a necessary antecedent condition for the learning of appropriate sex roles by children, the aforementioned conditions may also help to explain the similarity between Negro boys and girls in goals and values.[8]

This similarity of goals and values among Negro boys and girls is in contrast with different patterns among white (Anglo-American) boys and girls in the general society. The findings of Lott and Lott, however, deal with finishing High School students and do not take into account those who have dropped out along the way. It is likely that the proportion of Negro boys who drop out is greater than that of Negro girls. Being in a potentially vulnerable position, the Negro boy who is starting to school is in need of greater encouragement to achieve in school than is his sister. It may be that the Negro boy with Head Start experience gets a stimulus to perform better which is lacking in the Negro boy without that experience. The need for the Negro girl may not be as great in this regard and shows, therefore, no gain.

The same tendency is found for the Mexican-American boys and girls at a level of lower statistical significance. While the difference between the percent of Head Start boys who were superior is only 3.1 percentage points greater than the percentage of superior control children, the proportion of Mexican-American girls who were superior is 8.7 percentage points smaller than the percentage of superior girls in the control group. Allowing for any failings which may be attributed to the matching, the boys did do better than the girls within the Mexican-American

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8. Ibid., p. 161.

TABLE III

ETHNIC SUB-SAMPLES OF LUBBOCK HEAD START CHILDREN CLASSIFIED BY SEX AND SCHOOL ACHIEVEMENT WHEN COMPARED WITH CONTROL CHILDREN

Ethnic Category by Sex	Relative Achievement in School of Matched Children			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Negro Male	43	15	29	87
Negro Female	24	10	42	76
$\chi^2 = 8.0627$ $p < .02$, 2 df				
Mexican-American Male	26	14	24	64
Mexican-American Female	19	4	23	46
$\chi^2 = 3.5633$ $p < .20$, 2 df				
Anglo-American Male	1	4	7	12
Anglo-American Female	2	4	3	9
$\chi^2 = 1.5361$ $p > .20$				

(This last Chi-square is a dubious statistic since only one cell is as large as the minimum size of five.)

Head Start sub-sample. Since normally few Mexican-American homes stress education or intellectual effort and the boys in particular often "lacked encouragement from their parents, especially their fathers, to continue their schooling,"[9] it is particularly important to discover any program which will offer a stimulus at the beginning of this educational process. The emphasis placed upon conformity, neatness, non-aggression, and dependence are traits more closely associated with the female than the male[10] and stand in contrast with the theme of machismo (manliness) which the Mexican-American boy receives in his home and neighborhood.[11] The sex difference is not statistically significant as in the case of the Negro children, but it is in the same direction and is worth noting.

With the Anglo-American (white) children the opposite tendency is found with the Head Start girls outperforming the boys (shown in Table III). The small sample (21) keeps the Chi-square from being significant as it would be with a larger sample having this distribution. The proportion of all Anglo children (and indeed of all children in the study) shows that there were many Head Start children who did not do as well as the matched control child. Dependence of the investigators upon the classroom teachers for the matching would make it easy for them to pass the responsibility of any error in matching to the otherwise cooperative and helpful teachers; it is, after all, possible that the Anglo children were matched not with "culturally deprived" children but with "average" children in the classroom. It will be necessary, however, to wait for detailed individual investigations in the second phase of the study to determine the adequacy of the matching.

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9. Celia S. Heller, Mexican American Youth: Forgotten Youth at the Crossroads. (New York: Random House, 1966), p. 39.

10. Riessman, op. cit., p. 34.

11. Heller, op. cit., pp. 35-36.

Hypothesis II

The second hypothesis predicted specifically that there would be a greater gain from Head Start on the part of the Negro children over the Mexican children because of the lower educational levels of the parents of the latter. Only partial support is provided for this hypothesis. The Negro boys do show a greater gain (49.4 percent Head Start superiority as compared with 40.6 percent Head Start superiority for the Mexican-American boys). This is offset among the girls where Negro Head Start cases were superior 31.6 percent of the time and Mexican-American girls 41.3 percent of the time. When these sex categories are combined there is almost no difference with 41.1 percent and 40.9 percent superior Head Start children among the Negro and Mexican-American sub-samples respectively. Limiting consideration to the boys (who alone showed a gain from Head Start), the gain is in the direction predicted but at a level below statistical significance.[12]

To supplement the use of the grades assigned as a measure of school success, the teachers were asked to rate each child (in comparison with a control child) in terms of eight questions:

1. Which child was happier in school?
2. Which child participated more?
3. Which child created fewer problems for you (for the teacher)?
4. Which child was more regular in attendance?
5. Which child showed the greater desire to learn?
6. Which child made the greater educational accomplishments during the year?
7. Which child was further advanced at the end of the school year?
8. Which child had the greater overall understanding?

With regard to the superior showing of the boys (due to the strength of the Negro and Mexican-American sub-samples) in the measurement based upon grades, it should be noticed that the same tendency is shown in the teachers' responses to

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12. $\chi^2 = 5.85568$, 2 df
$p < .20$

the above questions. Question 7 (Which is further advanced?) showed the same tendency as the measurement of grades and is significant at the .02 level. Question 6 (Greater educational accomplishments?) exhibited the same tendency at the .05 level. Questions 1, 2, and 8 showed the same tendency but not at significant levels. Not significant but with the opposite tendency is Question 3, with the teacher feeling that the Head Start girls created fewer problems in the classroom even though the boys profited more. In terms of attendance, the teachers rated Head Start children of both sexes as better than the control children; also, the teachers rated both as showing less desire to learn; neither difference is significant.

Distributions not shown between grades assigned and each of the supplemental measurements by the teacher yielded significant Chi-squares, usually at extreme levels. These interrelationships are shown in Appendix III in terms of Continqency Coefficients ranging from C = .2342 to C = .7398. The lowest level of agreement was between the grades assigned and attendance reported by the teacher. Even this C of .2342 is based upon a Chi-square of 11.4956 (with 4 df) which is significant at the .05 level. Agreement also exists between the grades assigned and official attendance records (C = .2352). Only the Citizenship Grade ("Conduct") yields relationships at consistently lower levels. Usefulness of this grade as an indicator is further restricted by failure of some schools to record such a grade.

Only with this set of measures of school achievement does sex show such importance; it is not significant in any of the socio-economic relationships. This suggests that the role of male and female may have special relevance to school achievement in the sub-cultures from which these sub-samples are drawn.

Hypothesis III

It was anticipated that level of parental education would be significantly related to Head Start achievement. Table IV shows the distributions by Education

of Mother and Education of Father, each cross-tabulated with Head Start achievement of the child. Neither distribution is statistically significant but in each case the parents of the highest educational level (High School graduate) had the highest percentage of Head Start children who were superior, 47.4 percent and 50.0 percent in the portions of the table dealing with education of mother and father respectively.

Hypothesis IV

It was anticipated that the economic level of the family would be related to the success of the Head Start children. Income and occupation may be used as two indicators for this purpose. Appendix I shows all occupational categories but for statistical analysis it was necessary in Table V to combine occupational categories one through five and category eight in order to have a large enough category to use with the remaining category of laborers who constitute 69.2 percent of the fathers reported. The children of the fathers in higher status occupations (not laborers) are more likely to excel the paired control child than are children of laboring fathers (a difference significant at the .05 level). The impact of this is more evident on the girls than the boys. The Head Start girls who excel are 60 percent of those in families in higher status occupations and only 26.9 percent of the category of laboring fathers (noted in Table VI). For the boys the proportions are in the same direction but less pronounced (51.6 percent and 41.3 percent of the Head Start boys excel in the two occupational categories).

A similar distinction is shown in the teacher's evaluation of attendance in Table VII. The girls from homes with higher status occupations are reported by the teacher as better in attendance (significant at the .05 level). This tendency is not evident among the boys. It may be noted, however, that attendance has a relatively weak relationship with grades (the basic measure of school success)

TABLE IV

EDUCATION OF MOTHER AND EDUCATION OF FATHER ACCORDING TO SCHOOL ACHIEVEMENT OF HEAD START CHILD COMPARED WITH CONTROL CHILD

Years of Schooling for Mother and for Father	Relative Achievement in School of Matched Children			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Mother				
No Schooling	2	1	2	5
Grades 1-6	16	8	19	43
Grades 7-8	9	3	11	23
Some High School	24	8	31	63
High School Graduate or beyond	10	3	8	21
				$\Sigma = 155$
$\chi^2 = .4495$				
$p > .80$, 2 df				
Father				
No Schooling	3	0	4	7
Grades 1-6	16	6	17	39
Grades 7-8	5	1	9	15
Some High School	13	6	15	34
High School Graduate or beyond	10	1	9	20
				$\Sigma = 115$
$\chi^2 = .2629$				
$p > .80$, 2 df				

(In the statistical analysis, the distributions were collapsed into six cells in each half of the table as indicated by the lines.)

TABLE V

OCCUPATIONAL DISTRIBUTION OF FATHERS OF HEAD START CHILDREN
BY SCHOOL ACHIEVEMENT WHEN COMPARED WITH CONTROL CHILDREN

Occupation of Father	Relative Achievement in School by Matched Children			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Laborer	40 (34.8%)	17 (14.8%)	58 (50.4%)	115 (100%)
Other Occupations	28 (54.9%)	7 (13.7%)	16 (31.4%)	51 (100%)

$\chi^2 = 6.4332$

$p < .05$, 2 df

whether attendance is reported by the official records or by teacher evaluation.

Extreme hardship shown by unemployment of the father or receipt of public assistance was not shown as necessarily relevant to school achievement. Income as a measure of socio-economic position was of limited value only. Because the combined presentation is not indicative, Table VIII presents separately the boys and girls according to family income and Head Start achievement. Distributions do not indicate that the girls were helped by Head Start at either lower or upper income levels (with upper income being defined as anything above $3000). The boys show no difference at upper levels but do a little better at the income level below $3000, often defined as the poverty line.

In summation, it may be noted that the boys showed more gain from Head Start than did the girls. When the girls showed an advantage it was due to a socio-economic variable in their background such as higher status occupation of the father. The boys who showed more gain from Head Start, however, showed this gain at the level of greatest need, for example, when the status of the family measured by income was the lowest. The superiority of the girls, when present, was based on advantages prior to and independent of Head Start experience. Hence this advantage would be equally present with the control child. The superiority of the boys, however, was most evident at the places where weakness of the lower class Negro and Mexican-American sub-cultures was greatest. If it is true that Negro and Mexican-American girls are more prone to stay and do reasonably well in school than their brothers, this fact will have its impact upon the control child as much as the child in the experimental group. It is in the face of this weakness among the boys that the gains from Head Start were made.

A similar interpretation may be given the findings relating to a working mother. Tables IX and X show that the child with a working mother is more likely to be judged by his teacher as "participating more" in school (significant at the .02 level) and as "being further advanced" at the end of the school year (signifi-

TABLE VI

OCCUPATIONAL DISTRIBUTION OF FATHERS OF HEAD START CHILDREN SHOWN SEPARATELY FOR BOYS AND GIRLS ACCORDING TO SCHOOL ACHIEVEMENT WHEN COMPARED WITH CONTROL CHILDREN

Occupation of Father For Boys and For Girls	Relative achievement in School by Matched Children			Total
	Head Start Child Superior	No Difference	Control Child Superior	
For Boys: Laboring Father	26 (41.3%)	12 (19.0%)	25 (39.7%)	63 (100%)
Other Occupation	16 (51.6%)	6 (19.4%)	9 (29.0%)	31 (100%)
$\chi^2 = 1.0216$ $p > .50$, 2 df				
For Girls: Laboring Father	14 (29.9%)	5 (9.6%)	33 (63.5%)	52 (100%)
Other Occupation	12 (60.0%)	1 (5.0%)	7 (35.0%)	20 (100%)
$\chi^2 = 6.8712$ $p < .02$, 1 df				

Note: The Chi-square for the bottom half of the table is computed on the basis of four cells formed by collapsing the No Difference and Control categories to eliminate small theoretical cells. If the same is done for the top half of the table, a Chi-square of .6672 is produced there.

TABLE VII

OCCUPATIONAL DISTRIBUTION OF FATHERS OF HEAD START CHILDREN SHOWN SEPARATELY FOR BOYS AND GIRLS ACCORDING TO TEACHER'S ESTIMATE OF ATTENDANCE WHEN COMPARED WITH CONTROL CHILDREN

Occupation of Father For Boys and For Girls	Estimated Attendance at School by Matched Children			Total
	Head Start Child Superior	No Difference	Control Child Superior	
For Boys: Laboring Father	24 (51.1%)	3 (6.4%)	20 (42.5%)	47 (100%)
Other Occupation	12 (57.1%)	2 (9.5%)	7 (33.3%)	21 (99.9%)
$\chi^2 = .0001$ $p > .99$, 1 df				
For Girls: Laboring Father	14 (45.2%)	3 (9.6%)	14 (45.2%)	31 (100%)
Other Occupation	11 (78.6%)	0 ( )	3 (21.4%)	14 (100%)
$\chi^2 = 4.3600$ $p < .05$, 1 df				

Note: The Chi-squares for both halves of the table are computed on the basis of four cells formed by collapsing the "No Difference" and "Control Child Superior" categories to eliminate small theoretical cells.

TABLE VIII

INCOME DISTRIBUTION OF FAMILIES OF HEAD START CHILDREN SHOWN SEPARATELY FOR BOYS AND GIRLS ACCORDING TO SCHOOL ACHIEVEMENT WHEN COMPARED WITH CONTROL CHILDREN

Family Income For Boys and For Girls	Relative Achievement in School by Matched Children			Total
	Head Start Child Superior	No Difference	Control Child Superion	
For Boys Under $3000 annually	16 (45.7%)	9 (25.7%)	10 (28.6%)	35 (100%)
$3000 or over annually $\chi^2 = 2.5939$ $p > .20$, 2 df	14 (43.8%)	4 (12.4%)	14 (43.8%)	32 (100%)
For Girls: Under $3000 annually	8 (36.4%)	1 (4.5%)	13 (59.1%)	22 (100%)
$3000 or over annually $\chi^2 = .0164$ $p > .30$, 1 df	6 (31.6%)	1 (5.3%)	12 (63.2%)	19 (100%)

Note: The Chi-square for the bottom half of the table is computted on the basis of four cells formed by collapsing the "No Difference" and "Control Child Superior" categories to eliminate small theoretical cells.

cant at the .05 level) when compared with the control child. Except for "creating fewer problems" for the teacher, all the other items of evaluation by the teacher show a superiority of the Head Start child with a working mother but at a level below statistical significance. Parenthetically it may be noted that Negro children have a larger proportion of working mothers, a tendency opposite that of the Anglo- and Mexican-American children (significant at the .001 level).

Riessman noted in 1962 that a culture of poverty could have its strengths as well as its weaknesses. "The strengths themselves are uneven and complex, often they are the reverse side of weaknesses. Thus the positive features found in the peer culture and the greater sibling interaction may arise from the limited time that the parents can spend with their children ...; ... and the maturity of the children may be related to the fact that the poor are less educated by parents and teachers and hence forced to develop their own resources at an early age."[13]

In terms of what Riessman has said, the working mother does not necessarily provide better care for her children; rather, by early throwing them on their own resources she demands the most of them. That this freedom may have a potential for social problems as well as school achievement goes without saying. It is in this adventitious circumstance, however, that the accomplishment of Head Start is the greatest. Although the special case of working mothers may be interrelated with low income, low occupation, and other variables previously discussed, it focuses attention on an area of investigation which need further attention: the relation of the child within his family. The initial investigation was forced by limitations of time and personnel to focus on existing records. An extension of

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13. Riessman, op. cit., p. 186.

TABLE IX

DISTRIBUTION OF HEAD START CHILDREN WITH WORKING MOTHERS ACCORDING TO TEACHER'S EVALUATION OF PARTICIPATION IN SCHOOL WHEN COMPARED WITH CONTROL CHILDREN

Work Status of Mother	Relative Participation in School by Matched Children			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Full Time Work	29 (61.7%)	3 (6.4%)	15 (31.9%)	47 (100%)
Part Time Work	24 (58.5%)	3 (7.3%)	14 (34.1%)	41 (99.9%)
No Work Outside Home	18 (35.3%)	6 (11.8%)	27 (52.9%)	51 (100%)

$\chi^2 = 8.1204$

$p < .02$, 2 df

Note: The Chi-square is computed on the basis of six cells formed by collapsing the "No Difference" and "Control Child Superior" categories to eliminate small theoretical cells.

TABLE X

DISTRIBUTION OF HEAD START CHILDREN WITH WORKING MOTHERS ACCORDING TO TEACHER'S EVALUATION ABOUT BEING FURTHER ADVANCED IN SCHOOL WHEN COMPARED WITH CONTROL CHILDREN

Work Status of Mother	Being Further Advanced in School by Matched Children			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Full Time Work	26 (44.3%)	1 (2.1%)	20 (42.6%)	47 (100%)
Part Time Work	23 (56.1%)	3 (7.3%)	15 (36.6%)	41 (100%)
No Work Outside Home	17 (33.3%)	4 (7.8%)	30 (58.8%)	51 (99.9%)

$\chi^2 = 6.4722$

$p < .05$, 2 df

Note: The Chi-square is computed on the basis of four cells formed by collapsing the "No Difference" and "Control Child Superior" categories to eliminate small theoretical cells.

the study proposes to make more use of interviewing and standardized measures in classroom and home as well as hypotheses on the place of siblings, migration, and interrelations of various aspects of the cultural and sub-cultural environment.

Tabular presentation of all possible variables considered in this study is not being given here. A summary set of data on the project is presented in Appendices. If any cross tabulations not presented are desired, they can be presented upon request.

Evidence presented has not shown an overwhelming success in the Head Start Program in Lubbock in 1965. What has been shown is a surprising degree of success at the places where the need may have been the greatest. Recognition of this should increase rather than hamper efforts within the program to prepare disadvantaged children for effective school participation.

U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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REPORT OF THE EFFECTIVENESS OF PROJECT HEAD START,

LUBBOCK, TEXAS

PART II

W. G. Steglich, Project Director

Walter J. Cartwright, Principal Investigator

Submitted to

THE OFFICE OF ECONOMIC OPPORTUNITY

September, 1967

PS 000859

REPORT OF THE EFFECTIVENESS OF PROJECT HEAD START, LUBBOCK, TEXAS*

W. G. Steglich, Project Director
Walter J. Cartwright, Principal Investigator

Objectives

The basic concern in the continuation study of the Lubbock population of children who participated in Project Head Start in the summer of 1965 was whether any gains that could be detected in the first year would still be visible at the end of the second grade. Matched pairs of Head Start and control children were used for this measurement. Of the 590 children (295 matched pairs) of the first year's study, only 510 individuals remained for the more detailed second year's investigation. Data on this sample of 510 will be presented below. For the major question, however, of whether the Head Start children performed better or worse than matched control group only those children could be used who remained matched. Seventy-six pairs were eliminated from such an analysis because, while one was available for study, the other was no longer in the school system. Children who moved to another school where they were available to the investigators were included. Further loss to the control and experimental groups resulted from one of the pair being retained or assigned to special education classes. No attempt was made to correct errors in matching after the fact. When, however, the children in the second year were assigned by the school system to different types of programs, their work was no longer comparable and could not be used in this analysis. The combination of these factors left 140 matched pairs (both of whom had passed or both of whom had failed) out of the original 295 pairs.

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Concern was felt by the investigators about the influence this attrition might have on the two year comparison (second grade as compared with first grade) that was included in the study. In the major measurement of the ability of Head Start to improve a child's opportunity to do school work when compared with the matched child, a superior Head Start child was scored as 1, equal achievement was scored as 2, and a superior control child was scored as 3. Among the 295 original pairs, a mean score of 2.0441 with a standard error of the mean of .0529 was computed. When the same comparison within the 140 remaining pairs was computed a mean score of 2.1000 was computed. The initial sample of 295 pairs did not vary significantly from "no difference" between Head Start and control while the more restricted sample remaining was clearly in the direction of superiority of the control child. Attrition, then, had produced a sub-sample which could alter the findings by making it more difficult to show Head Start superiority. Instead, an inferiority of the total Head Start group was indicated. It is from this gloomy position that the analysis of the data attained at the end of the second grade was begun.

Presented in Table XI are the distributions of comparative grades of the children by ethnic group in both 1966 and in 1967. In the first grade the control children were superior in all categories. In the second grade, while there is a slight increase in superior Head Start children for all categories (largely a shift from the "no difference" category), only in the Negro category does this become greater than the number of superior control children. Even this change is not statistically significant.[14]

Data from the first year's study (in Table II) suggested a greater gain for boys

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14. When the data for the Negro children for 1965-1966 and 1966-1967 are analyzed by the chi square test, $\chi^2 = .98809$

$.50 < p < .70$, 2 df.

TABLE XI

ETHNIC DISTRIBUTION OF 140 HEAD START CHILDREN IN LUBBOCK BY SCHOOL ACHIEVEMENT WHEN COMPARED WITH CONTROL CHILDREN

Ethnic category	Relative Achievement in School of Matched Children School year 1965-1966			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Anglo-American	2 (22.2%)	2 (22.2%)	5 (55.6%)	9 (100%)
Mexican-American	18 (34.0%)	12 (22.6%)	23 (43.4%)	53 (100%)
Negro	27 (34.6%)	18 (23.1%)	33 (42.3%)	78 (100%)
	Relative Achievement in School of the same Matched Children School year 1966-1967			
Anglo-American	4 (44.4%)	0	5 (55.6%)	9 (100%)
Mexican-American	21 (39.6%)	7 (13.2%)	25 (47.2%)	53 (100%)
Negro	31 (39.7%)	20 (25.6%)	27 (34.6%)	78 (99.9%)

(For statistical analysis, the Anglo-American category is omitted from each half of the table because of the small numbers involved.)

In the Upper half of the table, representing grades in the first year of school,

$\chi^2 = .0153$

$p > .99$, 2 df.

In the lower half of the table, representing grades in the second year of school,

$\chi^2 = 3.6201$

$.10 < p < .20$, 2 df.

than girls from Head Start participation. The attrition already mentioned lessened the level of significance of the differences noted although it did not change the direction of the 1966 grades for the smaller 1967 sample (see Table XII). The 1967 grades showed a slight increase in superior performance for both Head Start boys and girls, although the differences between them are less than the first year and in the same direction, indicating a very slight superiority of the boys in profiting from Head Start experience.

Table XIII presents a similar comparison between the first and second grade achievements of the 140 pairs of children, according to sex and ethnic group. The male superiority and Negro superiority in the previous tables are found to reside in the Negro male category which has the greatest proportions of Head Start children who were superior over the reverse ranking of superior control children. In the second grade, however, the degree of gain from Head Start by this single category of Negro boys is partially offset by slight increases among Negro girls, Mexican-American girls and both boys and girls in the very small Anglo classification. With these changes the differences between male and female drop below the usual levels of statistical significance.

An alternative way of examining the achievement of the children in the sample and various sub-samples would be in terms of average grades, making it possible in addition to compare means with the larger group of 510 children interviewed, including those who were no longer matched. The school systems represented in the study used a four grade system of U (unsatisfactory), I (needs to improve), S (satisfactory), and H (highly satisfactory). A numerical grade based on the decimal system not being available, the letter grades were converted to numbers by assigning the value of 0,1,2,and 3 to each of the grades respectively.[15]

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15. Five Head Start Children made from 1 to 4 H's and 3 control children made from 1 to 3 H's.

TABLE XII

SEX DISTRIBUTION OF 140 HEAD START CHILDREN IN LUBBOCK BY SCHOOL ACHIEVEMENT WHEN COMPARED WITH CONTROL CHILDREN

Sex	Relative Achievement in School of Matched Children School Year 1965-1966			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Male	28 (37.3%)	21 (28.0%)	26 (34.7%)	75 (100%)
Female	19 (29.2%)	11 (16.9%)	35 (53.9%)	65 (100%)
All Children	47 (33.6%)	32 (22.9%)	61 (43.6%)	140 (100.1%)
	Relative Achievement in School of the same Matched Children School year 1966-1967			
Male	32 (42.7%)	14 (18.7%)	29 (38.7%)	75 (100.1%)
Female	24 (36.9%)	13 (20.0%)	28 (43.1%)	65 (100%)
All Children	56 (40.0%)	27 (19.3%)	57 (40.7%)	140 (100%)

For the upper half of the table, representing grades in the first year of school,

$\chi^2 = 5.4899$

$.05 < p < .10$, 2 df.

For the lower half of the table, representing grades in the second year of school,

$\chi^2 = .4856$

$.70 < p < .80$, 2 df.

For all children, comparing the two years in the two halves of the table,

$\chi^2 = 1.3457$

$.50 < p < .60$, 2 df.

TABLE XIII

ETHNIC SUB-SAMPLES OF 140 LUBBOCK HEAD START CHILDREN CLASSIFIED BY SEX AND SCHOOL ACHIEVEMENT WHEN COMPARED WITH CONTROL CHILDREN IN TWO SCHOOL YEARS

Ethnic Category by Sex	Relative Achievement in School by Matched Children in 1965-66			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Negro Male	18 (43.9%)	11 (26.8%)	12 (29.3%)	41 (100%)
Negro Female	9 (24.3%)	7 (18.9%)	21 (56.8%)	37 (100%)
$\chi^2 = 6.1544$ $p < .05$, 2 df				
Mexican-American Male	9 (32.1%)	9 (32.1%)	10 (35.7%)	28 (99.9%)
Mexican-American Female	9 (36.0%)	3 (12.0%)	13 (52.0%)	25 (100%)
$\chi^2 = 3.2318$ $p > .10$, 2 df				
Anglo Male	1 (16.7%)	1 (16.7%)	4 (66.7%)	6 (100.1%)
Anglo Female	1 (33.3%)	1 (33.3%)	1 (33.3%)	3 (99.9%)
no χ^2 computed				
	Relative Achievement in school by Matched Children in 1966-1967			
Negro Male	21 (51.2%)	10 (24.4%)	10 (24.4%)	41 (100%)
Negro Female	10 (27.0%)	10 (27.0%)	17 (45.9%)	37 (99.9%)
$\chi^2 = 5.5274$ $.05 < p < .10$, 2 df				
Mexican-American	9 (31.2%)	4 (14.2%)	15 (53.5%)	28 (100%)
Mexican-American Female	12 (48.0%)	3 (12.0%)	10 (40.0%)	25 (100%)
$\chi^2 = 1.3882$ $p > .20$, 1 df*				
Anglo Male	2 (44.4%)	0	4 (55.6%)	6 (100%)
Anglo Female	2 (66.7%)	0	1 (33.3%)	3 (100%)
no χ^2 computed				

*Because of small numbers in the "no difference" column for the Mexican-American children in 1966-1967, these cells are collapsed with the "Control Child Superior" cells adjacent to them, creating a classification with four cells.

There being six grade periods in the school year, the resulting grades ranged from zero for six grades of U to more than 12 for grades of S with a mixture of H grades. Table XIV presents the Means ($\overline{X}$) for the grades of 510 children in the Lubbock sample in 1967 and for various sub-samples. On the basis of these figures it is possible to say that the control children made higher grades than the Head Start children (but not significantly higher). It may also be noted that the Anglo-American child did better than the Negro and Mexican-American child and on the average the Mexican-American child did better than the Negro child. The existence of variations in school achievement among ethnic and cultural groups have been noted by others.[16] This does not answer the question, however, as to whether any of them could profit from Head Start experience. Only gains from among a disadvantaged school population provides evidence at this point. Putting the ethnic and Head Start classifications together (as in Table XIV), it will be seen that only in the Negro sub-sample did the Head Start child do better than the control child with whom he was matched. If the analysis of the effectiveness of Project Head Start is going to deal with the possibility of gain from the program, it must give special attention to sub-samples bearing evidence on this, even though the statistical certainty of the results be reduced with the size of the sample.

Since 75.3 percent of the fathers for whom occupational data was available in the original sample of Negro Head Start children were laborers (and 72.3 percent of the fathers of all ethnic groups), the relationship of achievement with occupation

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16. Recently Niel Allen McDowell has pointed out the significant differences in "intelligence" and "general ability" favoring Anglo children among the ethnic groups. Differences were also found to exist between the Negro and Spanish surname children, favoring the Spanish surname children in the San Antonio area. See: Niel Allen McDowell, "A Status Study of the Academic Capabilities and Achievements of three ethnic groups: Anglo, Negro, and Spanish Surname in San Antonio, Texas," Dissertation Abstracts, Vol. 27, No. 9 (March 1967) p. 2470-A.

TABLE XIV

AVERAGE GRADES FOR 510 CHILDREN IN 1967 AND FOR VARIOUS SUB-SAMPLES BY ETHNIC GROUP, HEAD START PARTICIPATION, AND RETENTION

Category	Number of Children	Mean Grade	SE of $\bar{X}$
Total in Lubbock Sample in 1966-1967	510	8.7667	.1738
Negro Head Start Children	150	8.7200	.2869
Negro Children in Control Group	143	8.3916	.3646
All Negro Children (sub-total)	293	8.5597	.2301
Mexican-American Head Start	94	8.4681	.4068
Mexican-American Control Group	92	9.2717	.4008
All Mexican-American (sub-total)	186	8.8656	.2856
Anglo-American Head Start	15	9.1333	1.1013
Anglo-American Control Group	16	11.0625	.8817
All Anglo-American (sub-total	31	10.1290	.7813
All Head Start Children in Lubbock Sample 1966-1967	259	8.6525	.2295
All Control Children in Lubbock Sample 1966-1967	251	8.8844	.2626
Non-retained Children (Second Grade in 1966-1967)	358	8.9386	.2152
Retained Children (First grade for the second time in 1966-1967)	152	8.3618	.2875

of father should be noted. In the original 1966 sample there was a significant relationship ($\chi^2 = 6.4332$ $p < .05$, 2 df) with Head Start children of laboring fathers being inferior to the matched child of the control group and Head Start children of non-laboring fathers being superior in this matching (see Table V). Table XV presents the same relationships for the 140 matched pairs which remained in the sample in 1967. Due to attrition, the differences have dropped below the .05 level of significance, although still in the direction of a marked inferiority on the part of Head Start children with laboring fathers. The comparable data on 1967 grades shows no change in the relative performance of Head Start children whose fathers were non-laborers, but shows a decided decrease in inferiority of the Head Start child whose father was a laborer. The "no information" category which may be taken as a mixed category, lies between the other two in tendency. The trends do not prove that there has been a "significant" improvement among Head Start children in the second grade but it does "suggest" that there has been a decrease in a marked inferiority that was associated with occupational level of the father. Table XVI indicates these relationships when divided by sex of child. As the number of children in the "Other Occupations" category has been limited by attrition to seven girls and twenty boys, this has been combined with the "no information category" which probably contains seventy to seventy-five percent laboring fathers and masks the tendencies that might have been revealed. The differences between the 1966 and 1967 data, therefore, are not significantly great although there is a greater inferiority on the part of the girls of laboring fathers than similar boys and a slight gain in 1967 in Head Start superiority for both boys and girls.

The slight gains made in school achievement for the Head Start children shown in Table XVI were not accompanied by improvement in regularity of attendance (see Table XVIII). There was no difference between the first and second grades for the children whose fathers were reported to have other occupations but there was a reversal of

TABLE XV

OCCUPATIONAL DISTRIBUTION OF FATHERS OF 140 HEAD START CHILDREN BY CHILD'S SCHOOL ACHIEVEMENT WHEN COMPARED WITH CONTROL CHILDREN

Occupation of Father	Relative Achievement in School' by Matched Children in 1965-1966			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Laborer	12 (24.5%)	10 (20.4%)	27 (55.1%)	49 (100%)
Other Occupations	13 (48.1%)	5 (18.5%)	9 (33.3%)	27 (99.9%)
No Information on Occupation	22 (34.4%)	17 (26.6%)	25 (39.1%)	64 (100.1%)
	Relative Achievement in School by Matched Children in 1966-1967			
Laborer	16 (32.7%)	14 (28.6%)	19 (38.8%)	49 (100.1%)
Other	13 (49.1%)	5 (18.5%)	9 (33.3%)	27 (99.9%)
No Information on Occupation	27 (42.2%)	8 (12.5%)	29 (45.3%)	74 (100%)

a A statistical analysis was made of the first two rows in each half of the table in order to determine the differences between the children whose fathers were laborers and all others for whom information was available.

On the 1966 data,

$\chi^2 = 4.7349$

$p > .05$, 2 df.

On the 1967 data,

$\chi^2 = 1.9389$

$p > .30$, 2 df.

TABLE XVI

OCCUPATIONAL DISTRIBUTION OF FATHERS OF HEAD START CHILDREN IN 140 MATCHED PAIRS SHOWN SEPARATELY FOR BOYS AND GIRLS ACCORDING TO CHILD'S ACHIEVEMENT IN SCHOOL WHEN COMPARED WITH CONTROL CHILDREN

Occupation of For Boys and For Girls	Relative achievement in School by Matched Children in 1965-1966			Total
	Head Start Child Superior	No Difference	Control Child Superior	
For Boys: Laboring Fathers	6 (26.1%)	7 (30.4%)	10 (43.5%)	23 (100%)
All Others $\chi^2 = 1.7163$ $p > .30$, 2 df	22 (41.5%)	14 (26.5%)	17 (32.1%)	53 (100%)
For Girls: Laboring Fathers	6 (23.1%)	3 (11.5%)	17 (65.4%)	26 (100%)
All Others $\chi^2 = 3.3294$ $p > .10$, 2 df	13 (34.2%)	8 (21.1%)	17 (44.7%)	38 (100%)
	Relative Achievement in School by Matched Children in 1966-1967			
For Boys: Laboring Fathers	8 (34.8%)	6 (26.1%)	9 (39.1%)	23 (100%)
All Others $\chi^2 = 1.4731$ $p > .30$, 2 df	24 (45.3%)	8 (15.1%)	21 (39.6%)	53 (100%)
For Girls: Laboring Fathers	8 (30.8%)	8 (30.8%)	10 (38.5%)	26 (100.1%)
All Others $\chi^2 = 3.0603$ $p > .10$, 2 df	16 (42.1%)	5 (13.2%)	17 (44.7%)	38 (100%)

TABLE XVII

OCCUPATIONAL DISTRIBUTION OF FATHERS OF HEAD START CHILDREN SHOWN SEPARATELY FOR BOYS AND GIRLS IN 1965-66 and 1966-67 ACCORDING TO RECORD OF SCHOOL ATTENDANCE WHEN COMPARED WITH CONTROL CHILDREN

Occupation of Father For Boys and For Girls	Regularity of Attendance at School by Matched Children in 1965-66 Head Start Child Superior	No Difference	Control Child Superior	Total
For Boys: Laboring Fathers	13 (59.1%)	0	9 (40.9%)	22 (100%)
Other Occupations	12 (60.0%)	0	8 (40.0%)	20 (100%)
No Information on occupation χ^2 =50820 p > .05 , 2 df*	11 (33.3%)	3 (9.1%)	19 (57.6%)	33 (100%)
For Girls: Laboring Fathers	13 (48.1%)	1 (3.7%)	13 (48.1%)	27 (99.9%)
Other Occupations	6 (85.7%)	0	1 (14.3%)	7 (100%)
No Information on occupation χ^2 = .0216 p > .80, 1 df*	13 (41.9%)	2 (6.5%)	16 (51.6%)	31 (100%)
	Regularity of Attendance at School by Matched Children in 1966-67			
For Boys: Laboring Fathers	9 (40.9%)	2 (9.1%)	11 (50.0%)	22 (100%)
Other Occupations	12 (60.6%)	0	8 (40.0%)	20 (100%)
No Information on occupation χ^2 = 2.4473 p > .10 , 2 df*	12 (36.4%)	2 (6.0%)	19 (57.6%)	33 (100%)
For Girls: Laboring Fathers	9 (33.3%)	1 (3.7%)	17 (63.0%)	27 (100%)
Other Occupations	6 (85.7%)	0	1 (14.3%)	7 (100%)
No Information on occupation χ^2 = 3.8170 p > .05 , 1 df*	16 (51.6%)	0	15 (48.4%)	31 (100%)

* In Computing Chi Square, all "No Difference" responses are combined with "Control Child Superior." "Other Occupations" is combined with "No Information" in both computations for the girls.

pattern for the laborers' sons who had better attendance in 1965-1966 and the daughters who showed no difference in the comparison with the control children. By contrast, in 1966-1967 both Head Start boys and girls were inferior to the matched children in attendance. Unfortunantly, no better stratification indicator was available to the investigators from school and Head Start records; information on income for the matched children is too skimpy to investigate further the influence of low economic status upon retention of gains made from Head Start experience (see Table XVIII). Low occupational level seems to be characterized by some losses, although this is not conclusive.

One of the major gains that could be expected from a program like Head Start would be an increase in readiness to participate in classroom activities. In the first year's analysis (see Table IX) it was reported that the classroom teachers had rated the Head Start children with mothers who worked full time as most superior in relative participation when compared with the control child, the children of part time working mothers close behind, and the children of mothers who did not work outside the home as inferior in relative participation. This was interpreted as indicating that perhaps the working mother "by early throwing them on their own resources" demands the most of her children.[17] Present data provide a means of measuring whether this initial eagerness to participate was sufficient to create superior accomplishment. Table XIX indicates a particular inferiority in school grades, which is after all a major indicator of school achievement, for the Head Start child whose mother works part time. Furthermore the initial inferiority of the child whose mother did not work is offset in the second grade by the greatest improvement in grades. These are, after all, the same children in both halves of the table. The improvement of the Head Start children whose mothers do not work (a 33.3 percent increase in superior cases and a 36.7 percent decrease in inferior cases) suggests that the availability of mother may

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17. See page 24 above.

TABLE XVIII

INCOME DISTRIBUTION FOR FAMILIES OF 140 HEAD START CHILDREN ACCORDING TO SCHOOL ACHIEVEMENT WHEN COMPARED WITH CONTROL CHILDREN

Family Income	Relative Achievement in School by Matched Children in 1965-1966			Total
	Head Start Child Superior	No Difference	Control Superior	
Under $3000 annually	6 (26.1%)	6 (26.1%)	11 (47.8%)	23 (100%)
$3000 or over annually	11 (44.0%)	4 (16.0%)	10 (40.0%)	25 (100%)
No Information on Income	30 (32.6%)	22 (23.9%)	40 (43.5%)	92 (100%)
Total 1965-66	47 (33.6%)	32 (22.9%)	61 (43.6%)	140 (100.1%)
	Relative Achievement in School by Matched Children in 1966-1967			
Under $3000 annually	8 (34.8%)	5 (21.7%)	10 (43.5%)	23 (100%)
$3000 or over annually	12 (48.0%)	5 (20.0%)	8 (32.0%)	25 (100%)
No Information on Income	36 (39.1%)	17 (18.5%)	39 (42.4%)	92 (100%)
Total 1966-67	56 (40.0%)	27 (19.3%)	57 (40.7%)	140 (100%)

Because the meaningful comparison is between the family incomes below and above $3000, only these two rows in each part of the table enter into the statistical analysis.

For the upper part of the table, $\chi^2 = 2.3866$ $p > .30$, 2 df.

For the lower part of the table, $\chi^2 = 1.5081$ $p > .30$, 2 df.

For the comparison of the totals in the two halves of the table,

$\chi^2 = 1.3457$ $p > .30$, 2 df.

TABLE VIX

WORK STATUS OF MOTHERS OF 140 HEAD START CHILDREN
ACCORDING TO SCHOOL ACHIEVEMENT WHEN COMPARED WITH CONTROL CHILDREN

Work Status of Mother	Relative Achievement in School by Matched Children in 1965-1966			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Full time work	12	10	13	35
Part time work	7	7	14	28
No work	12	3	19	34
No Information	16	12	15	43
	Relative Achievement in School by Matched Children in 1966-1967			
Full time work	13	9	13	35
Part time work	9	6	13	28
No work	16	6	12	34
No Information	18	6	19	43

In order to compare the combined working mothers with all others, computations were based upon the six cells indicated by the lines in each half of the table, excluding totals.

For the upper part of the table,

$\chi^2 = 1.2542$

$p > .50$, 2 df.

For the lower part of the table,

$\chi^2 = 2.1126$

$p > .30$, 2 df

be more important for continuing school achievement than the advantage of eagerness produced by a preschool program

It could be assumed that the availability of mother might help attendance by getting the child to school. Strangely, this does not seem to be the case. Table XIX presents the record of absence of the child by mother's work status and by father's occupation. The limiting number of responses on parental occupation further reduces the sample but emphasizes one datum: while seventy percent or more of Head Start children had a record of fewer days absent in three categories (all children with fathers in other occupations and children of laboring fathers who also have working mothers), a greater record of absences is noted for children of laboring fathers and mothers who did not work. The numbers are small and the statistic is not significant at the .05 level but it shows that the weakness in school attendance does not lie at the place where it might be expected. Further it would suggest that if the mother at home is helpful in encouraging the child to perform well in school it lies in some other factor than maintaining perfect attendance.

A sociogram was given to the children in the test and control groups to measure standing of these children with their peers. Each classroom containing one or more children in the original 1966 sample was asked to list the children in his room near whom he would like to sit if the class seating were to be rearranged. Each child could list as many children as he wished. For those who might not be able to write all names, the complete roster of the class was listed on the blackboard with a corresponding number. The names on the roster were called out with the accompaning number and were to be listed on the sociogram form by number. The process was simple enough that every child could comply. While children who were not in either the experimental or control groups were tested no further, the inclusion of all children in the classes in the sociogram gave a means of comparing Head Start and Control children with the balance of the class on this one item. As a byproduct, it provided some status for the children who were called out of class individually for

TABLE XX

WORK STATUS OF MOTHERS OF HEAD START CHILDREN WHEN FATHERS ARE LABORERS OR NON-LABORERS ACCORDING TO SCHOOL ATTENDANCE IN 1966-1967

Work Status of Mother	Number of days absent from school for Head Start Children with Laboring Fathers		Total
	0 days to 9 1/2 days	10 days or more	
Mother Works	23 (71.9%)	9 (28.1%)	32 (100%)
Does not Work	8 (47,1%)	9 (52.9%)	17 (100%)
$\chi^2 = 2.9519$ $p > .05$, 1 df			
	Number of days absent from school for Head Start Children with Fathers in Other occupations		
Mother Works	7 (70.0%)	3 (30.0%)	10 (100%)
Does not Work	10 (76.9%)	3 (23.1%)	13 (100%)
$\chi^2 = .14047$ $p > .70$, 1 df			

further testing by defining the test situation as an important one for all in school.

In analysis of the sociogram, the number of choices received by every child in each classroom was computed. The mean number of choices in each classroom was standarized to 20, making it possible to compare choices received in one classroom with all others. All sociogram scores were thus adjusted to read as a number less than or greater than 20. All of the Head Start children averaged a sociogram score of 19.43, meaning they were chosen slightly less than the class average. The control children averaged 20.26, slightly above the class average. A similar count of the choices made by each child yielded an average (mean) of 20.62 for the Head Start child and 20.13 for the control child, both slightly above the standardized class average.

These sociogram scores may be used to test further the adjustment of the children to the classroom as an indication of peer acceptance. Table XXI shows that the child of a working mother is chosen significantly more than the child of a mother who does not work. No difference seems to exist in the number of choices made for the sociogram in whether the mother works, both categories overchoosing more than underchoosing. The independence of the child of a working mother, as we have seen, led him to participate eagerly in class in the first grade (Table IX), possibly improved his attendance, and, now, indicates his acceptability to his peers in the second grade, without, however, improving his grades.

A Minimum Socialization Scale was constructed to measure the ability of the child to meet general social (adult) standards rather than the standards of his peers.[18] Following careful instruction, three graduate students in 510 interviews rated each child in terms of 12 items. He was given a score of one for each item done acceptably

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18. The Minimum Socialization Scale, which was constructed with the assistance of Dr. Authur B. Sweney of Texas Technological College, Psychological Consultant to the project, is to be found in Appendix VIII.

TABLE XXI

WORK STATUS OF MOTHERS OF 140 HEAD START CHILDREN ACCORDING TO SOCIOGRAM SCORES

Work Status of Mother	Chosen by other children in Sociogram		Total
	Overchosen *	Underchosen *	
Mother Works	30	33	63
Does not Work ** $\chi^2 = 7.9942$ $p < .01$, 1 df	18	59	77
	Number of selections made in Sociogram		
	Overchoosing *	Underchoosing *	
Mother Works	36	27	63
Does not Work ** $\chi^2 = .0842$ $p > .70$, 1 df	41	36	77

* Overchosen and underchosen represents a measure of social choices in the classroom which contrasts the times a child was chosen against the average (mean) number of choices received by all the pupils in the class. Underchosen represents a number of choices less than the mean; overchosen represents a number of choices equal to or greater than the mean. Similarly, the number of choices made by each child is compared with the mean of the number of choices made by all the pupils in the class.

** Combined with the count of mothers who did not work are those for whom no information is available which could include some working mothers. This combination will be practiced in the tables to follow.

such as giving his name, extending his hand, choosing a chair that was close rather than remote, sitting down, etc. A negative score was anticipated to an item on reaction to a period of awkward silence but proved to be of little value as only three children were judged to merit this negative rating. By the second grade most children seem to be socialized to the point of sitting silently while a teacher (or teacher surrogate) performs another task. The total set of twelve questions, however, yields a possible score from 0 to 12, with a mean score of 5.81. Table XXII presents a distribution of these scores in terms of whether the mother works, without any significant difference. Also in this table is a division of the cases according to Negro and Mexican-American.[19] While there is a preponderance (77.4 percent) of Mexican-American cases in the "Does not work" category and almost as great a proportion (62.8 percent) of Negroes in the opposite category ("Mother works"), these distributions do not yield significant differences within each ethnic category. Opposite tendencies in the Socialization Scores tend to cancel each other out. In Table XXIII Negro and Mexican-American Socialization Scores are compared. Both Head Start and Control groups indicate significant differences at the .001 level with the Mexican-American children scoring higher on the Socialization scale. The ethnic difference in the number of working mothers is also significant at the .001 level.[20] That is, ethnic membership is highly associated with having a working mother and with the traits measured by the Minimum Socialization Scale. Care must be exercised, therefore, that an attempt to measure gains from Head Start experience should not be confounded with ethnic difference

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19. The reader should not attempt to make the Negro and Mexican-American portions of Table XXII equal to the totals (all cases) at the top of the table as a small number (9) of Anglo-Americans are not listed in this table except in the totals.

20. When the Negro and Mexican-American distributions on whether the mother work or not (the marginals in Table XXII) are compared, they produce a $\chi^2 = 20.4744$ $p < .001$, 1 df.

TABLE XXII

WORK STATUS OF MOTHERS OF 140 HEAD START CHILDREN
ACCORDING TO MINIMUM SOCIALIZATION SCORES OF CHILD AND ETHNIC GROUP

Work Status of Mother	Minimum Socialization Score			Total
	High Score 8 - 12	Middle Score 5 - 7	Low Score 0 - 4	
All cases				
Mother Works	18	21	24	63
Does not Work	21	38	18	77
$\chi^2 = 3.7474$				
$p > .10$, 2 df				
Negro				
Mother Works	10	17	22	49
Does not Work	4	12	13	29
$\chi^2 = 1.0475$				
$p > .50$, 2 df				
Mexican-American				
Mother Works	7	4	1	12
Does not Work	12	24	5	41
χ^2 not computed				

TABLE XXIII

NEGRO AND MEXICAN-AMERICAN HEAD START AND CONTROL CHILDREN ACCORDING TO MINIMUM SOCIALIZATION SCORES

Ethnic Designation	Minimum Socialization Score			Total
	High Score 8 - 12	Middle Score 5 - 7	Low Score 0 - 4	
Negro Head Start	14	29	35	78
Mexican-American Head Start	19	28	6	53
$\chi^2 = 17.1412$				
$p < .001$, 2 df				
Negro Control	8	37	33	78
Mexican-American Control	19	24	10	53
$\chi^2 = 15.3420$				
$p < .001$, 2 df				

Ethnic differences are controlled in the comparison of Head Start with non-Head Start children on socialization scores by use of matched children. Table XXIV indicates that work status of the mother is related at the..02 level to Minimum Socialization scores in the paired observations. The Head Start child with a working mother tends to be socialized better than the Head Start child whose mother is not reported as working. This is consistent with popularity with peers evidenced by the sociogram scores but inconsistent with grade achievement.

Standarized tests of achievement provide another basis of testing school ability and, as one would expect, are consistent with the grades achieved. During the second grade the schools from which the sample was drawn make use of Science Research Associates (Chicago, Ill.) tests for measure of ability in reading and arithmetic. Results of these two tests are given in Table XXV, showing a superiority in SRA scores for the Head Start child with a non-working mother. The differences are at a level less than statistical significance, however. Of the 112 Head Start children whose scores are presented in Table XXV, five were paired with children who missed the test, leaving 107 matched pairs. When these comparative scores on the SRA tests are analyzed by sex (Table XXVI), Head Start boys did significantly better (at the .01 level) than the girls on the reading test and on the arithmetic test. The differences between categories as wholes are slight as Table XXIX in Appendix VII[21] shows and the possibility of gains from Head Start are more dramatically shown when the differences between the sample pairs are shown as in Table XXVI.

In terms of ethnic differences, the Anglo-American children attained the highest average grades (see the comparative means for grades and related measures in Appendix VII), with the Mexican-American children second, and the Negro children lowest. In the comparative showing of the Head Start children with the control children as paired, the order was reversed, gains being shown by the Negro Head Start children, little by

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21. In Appendix VII are miscellaneous tables that present data, already shown, according to division by sex and division at the Mean.

TABLE XXIV

WORK STATUS OF MOTHERS OF 140 HEAD START CHILDREN
ACCORDING TO MINIMUM SOCIALIZATION SCORE
WHEN COMPARED WITH CONTROL CHILDREN

Work Status of Mother	Relative Minimum Socialization Scores of Matched Children			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Mother Works	39 (61.9%)	6 (9.5%)	18 (28.6%)	63 (100%)
Does not Work	29 (37.7%)	13 (16.9%)	35 (45.5%)	77 (100%)
Totals	68 (48.6%)	19 (13.6%)	53 (37.8%)	140 (100%)

$\chi^2 = 8.1841$

$p < .02$, 2 df

TABLE XXV

WORK STATUS OF MOTHERS OF HEAD START CHILDREN ACCORDING TO SCORES ON STANDARDIZED TESTS (STA)

Work Status of Mother	Score on SRA Reading Test		Total
	45 or more	44 or less	
Mother Works	6	47	53
Does not Work	13	46	59
$\chi^2 = 2.2747$			
$p > .05$, 1 df			
Negro			
Mother Works	4	36	40
Does not Work	6	15	21
χ^2 not computed			
Mexican-American			
Mother Works	1	10	11
Does not Work	6	27	33
χ^2 not computed			
	Score on SRA Arithmetic test		
	45 or more	44 or less	
Mother Works	39	14	53
Does not Work	45	14	59
$\chi^2 = .45066$			
$p > .50$, 1 df			
Negro			
Mother Works	26	14	40
Does not Work	14	7	21
χ^2 not computed			
Mexican-American			
Mother Works	11	0	11
Does not Work	26	7	33
χ^2 not computed			

TABLE XXVI

SEX DISTRIBUTION OF HEAD START CHILDREN BY SRA SCORES WHEN COMPARED WITH CONTROL CHILDREN

Sex	Relative S.R.A. Scores on Reading of Matched Children			Total
	Head Start Child Superior	No Difference	Control Child Superior	
Male	26 (45.6%)	10 (17.5%)	21 (36.8%)	57 (99.9%)
Female	14 (28.0%)	3 (6.0%)	33 (66.0%)	50 (100%)
$\chi^2 = 9.6191$ $p < .01$, 2 df				
	Relative S.R.A. Scores on Arithmetic of Matched Children			
Male	29 (50.9%)	8 (14.0%)	20 (35.1%)	57 (100%)
Female	20 (40.0%)	2 (4.0%)	28 (56.0%)	50 (100%)
$\chi^2 = 6.1340$ $p < .05$, 2 df*				

* Contains one small theoretical cell of 4.67.

the Mexican-American Head Start sample, and the poorest showing of all by the small number of Anglo children in Head Start. The Negro Head Start children as a category had lower average scores on such negative measures as errors on Vocabulary Identification test, a vocabulary recognition test and an incidental information test, all of which may be taken as indicating superiority, as do higher general achievement grades, citizenship grades, and Minimum Socialization scores. Their higher absence rate, however, along with lower SRA scores, a higher rate of nervous symptoms, and being underchosen and overchoosing in the Sociogram keep the pattern from being consistent. While the Mexican American Head Start children made many more vocabulary and incidental information errors than the other ethnic groups, they produced fewer errors than the control category in these tests, fewer nervous symptoms, higher socialization scores, and higher SRA Arithmetic scores (by a slight margin). The Mexican-American Head Start child did not do as well as the control, however, in general grades, citizenship grade, SRA Reading test, absence record and sociogram. The Anglo Head Start child was inferior to the control in all respects except he was less nervous, was absent less, and did not feel it necessary to overchoose on the sociogram.

All data obtained from the 1967 sample of 510 children was analyzed through a Factor analysis program at the Texas Technological College Computer Center. All items that were not interval measurements were coded as ordinal measurements which approximated interval measurements. For example, ethnic status was handled by placing the two major categories at the extremes (Mexican-American as 10 and Negro as 30) with the small Anglo-American category coded as the mean (22) of the other two so that it would produce minimum distortion. Hence the influence of the ethnic factor was interpreted in terms of the extreme tendencies with strong relationships existing with some of the other variables. Negroes made fewer errors on the vocabulary tests but were more inhibited socially and made fewer active socialized moves in the

Minimum Socialization Test. Their results on the SRA tests were slightly lower. They were rated by the interviewers as being more frightened.[22]

Minimum Socialization Scale

The Minimum Socialization Scale was prepared for this research with the expectation that it would detect those elemental social skills that make it possible for a child to perform well in the classroom. The intercorrelations and factors shown in the test indicate that the items of this scale are highly heterogeneous and that they occupy a great number of dimensions in factor space. Socialization is thus seen as a very complex phenomenon which should be studied from a much more intensive point of view in subsequent studies. Care must be exercised in identifying the concepts because in many cases a single (and perhaps minor) variable is loading a factor. A reconstruction of the test is in order to extend and reinforce the dimensions indicated by this initial test. Second order factorization indicates that an active versus passive dimension exists in the socialization process. The active pole seems to be most positively related (r = .493) to emotional and intellectual effectiveness.

Rating Scales

The interviewers were asked to rate the children on several dimensions. (See the interview schedule in Appendix VIII.) As is so often the case, a rater's halo effect counteracted most of the potential effectiveness of this kind of measurement. There was, however, very little specific rater variance which suggests that the halo fault was a reliable function of the task rather than of the individual rater. Perhaps for this reason fewer and more diverse scales should be chosen for futher studies.

S.R.A. Achievement Scales

It was hoped that use of the two Standardized tests from Science Research Associates in the local schools would provide an independent measure of Head Start

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22. Negro children were rated as a mean of 5.174 on a "Frightened to Comfortable" scale as compared to a less frightened 6.032 for Mexican-American children on the same scale with 5.571 as the Mean for all 510 cases. Both racial categories are well beyond the Standard Error from the Mean ((SE = .0737).

effectiveness, as noted above. When factor analysis was limited to those second grade students who had taken the test (so that zero scores for those retained in the first grade would not create an artificial dimension), surprisingly, the SRA tests did not appear as a part of any factor.

OBJECT IDENTIFICATION AND OBJECT LOCATION (RECOGNITION)

A simple test was prepared by having each child identify 17 small toys taken from a box and laid on a table one at a time. Errors were counted for each item that was improperly identified. In the second phase the child was asked, "please hand me the cup," etc. through all items. In the first case the child must supply the word to correspond to a given item; in the second he must supply the item to correspond with a given word. This test was too easy as indicated by the low mean and highly skewed distributions.[23] There were a few individuals who had great difficulty with the task, however. The two tasks are so closely related (r = .337) that a single test would have served as well. Nor did they correlate with much beside each other with the "dull to sharp" rating, and slightly with the S.R.A. scales. Their relati with the test of incidental information errors (r = .311 and .259) indicates the presence of a basic factor which includes racial differences. The seeming independ of this factor from other measures of school achievement indicates that it is a different realm of measurement and probably should be retained in future studies in some modified form.

Sex

The lack of a clear cut sex factor (see also Appendix VII on this point) in th study is some confirmation to a generally held contention that primary children beh in an asexual manner, with the primary developmental tasks of socialization overpow ing any need for sexual identification. There is, however, a minor loading which

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23. Vocabulary Identification ($\bar{X}$) = 1.03722 s = 1.259
skewness = 2.033 kurtosis = 6.929
Vocabulary Recognition ($\bar{X}$) = .396275 s = .2474
skewness = 3.145 kurtosis = 11.753

indicates that teachers do favor girls in their rating systems and that girls are also slightly favored in the sociometric tests.

Sociometric Test

The choice behavior in the Sociometric test indicated that members of the Head Start sample were chosen less than other members of their classes and both Head Start and control samples tended to overchoose. The chosen children made fewer mistakes in incidental information and were rated as clean and "sharp" by the interviewers. They were also rewarded by their teachers with higher academic and citizenship marks. They showed a tendency to choose fewer persons than do the less popular children.

Design problems

This whole set of relationships suggests a central problem to the study: do these measurements indicate lack of gains from the Head Start program or were children assigned to the program who were in the beginning somewhat inferior to their age mates both intellectually (as measured) and socially? An attempt was made to match the Head Start children with a control group of the same inferior economic and cultural environments. Dependence was placed upon classroom teachers to make the matching midway in the first grade but few formal controls over the selection were possible for the investigators who were expected to interfere as little as possible with school routine. Appreciation is expressed for teachers and school officials for their cooperation and kind reception. Nonetheless, a lurking suspicion remains after the analysis that a great many Head Start children were assigned to the program because of anticipated difficulties while many control children of similar economic and social backgrounds were not placed in Head Start because parents of these children anticipated no difficulties. There is the possibility that Head Start might bring inferior children to a point of near-equality with controls who actually were superior before the program began. This is a very difficult question to resolve without pre-testing of some kind. Certainly there are questions of social policy involved in a

rigid experimental design that would find a given body of children needy of a Head Start program and deliberately assign some to the program by random choice and randomly withhold others for the sake of having a perfect sample. Lacking this, our conclusions have an element of doubt.

U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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APPENDICES

TO ACCOMPANY

REPORT OF THE EFFECTIVENESS OF PROJECT HEAD START,

LUBBOCK, TEXAS

W. G. Steglich, Project Director

Walter J. Cartwright, Principal Investigator

APPENDICES I - III are related to 1966 Data.

APPENDICES IV-VIII are related to 1967 Data.

Submitted to

THE OFFICE OF ECONOMIC OPPORTUNITY

September, 1967

PS 000059

APPENDIX I

SUMMARY STATISTICS ON HEAD START CHILDREN IN LUBBOCK, TEXAS, 1965

1. Name_____
   Address_____

2. Racial-ethnic group:
   - 21 Anglo-American (white)
   - 163 Negro
   - 110 Mexican-American
   - 1 American Indian (not Spanish Speaking)
   - 0 Puerto Rican
   - 0 Unknown
   - 0 Other

3. 163 Male 132 Female

4. Medical/Dental problems or illness:
   - 12 Many or serious problems (Parents not aware of these problems prior to Head Start)
   - 5 Many or serious problems (Parents aware)
   - 103 Some or minor problems (Parents not aware)
   - 12 Some or minor problems (Parents aware)
   - 91 No problems
   - 72 No response

5. Nutritional disorder:
   - 1 Yes, Parents not aware of the problem
   - 1 Yes, Parents aware of the problem
   - 220 No nutritional disorder
   - 73 No response

6. Child lives with:
   - 205 Both parents
   - 2 Father only
   - 55 Mother only
   - 7 Neither
   - 26 No answer

7. Mother's age:
   - 0 Under 20
   - 27 20 to 25
   - 35 25 to 30
   - 45 30 to 35
   - 44 35 to 40
   - 17 40 to 45
   - 5 45 to 50
   - 0 50 or over
   - 3 Mother deceased
   - 119 No answer

8. Marital status of mother:
   - 202 Married, living with husband
   - 10 Widowed
   - 13 Divorced
   - 11 Separated
   - 15 Other
   - 41 No answer

9. Highest school grade completed by mother:
   - 5 No schooling
   - 43 Grades 1 through 6
   - 23 Grades 7 and 8
   - 63 Some High School
   - 19 High School Graduate
   - 2 Post High School training
   - 137 No answer

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10. Does mother work outside the home?

72	Full time
61	Part time
72	None
87	No answer

11. Type of work if mother is employed:

1	Professional
3	Clerical and Sales
97	Service or private household worker
0	Craftsman, foreman, operative, etc.
1	Farmer
21	Laborer
1	Student
6	Other
3	No answer

12. If employed, length of time unemployed last year:

75	None
7	Less than three months
6	Three months to less than 7 months
4	Seven months to less than 9 months
7	More than 9 months

13. Father's age:

0	Under 20	23	40 to 45
5	20 to 25	17	45 to 50
23	25 to 30	13	50 or over
41	30 to 35	6	Father deceased
28	35 to 40	139	No answer

14. Marital status of father:

201	Married, living with wife
2	Widowed
1	Divorced
0	Separated
2	Other
83	No answer

15. Highest school grade completed by father:

7	No schooling
39	Grades 1 through 6
15	Grades 7 and 8
34	Some High School
19	High School graduate
1	Post High School training
174	No answer

16. Does father work outside the home?

141	Full time
10	Part time
4	None
134	No answer

17. Type of work of father:

2	Professional
8	Clerical and sales
16	Service or private household worker
15	Craftsman, foreman, operative, etc.
4	Farmer
115	Laborer
0	Student
6	Other
123	No answer

18. Length of time unemployed by father last year:

99	None
10	Less than three months
10	Three months to less than seven months
4	Seven months to less than nine months
0	More than nine months
166	No answer

19. Did the family receive public assistance or ADC last year?

17	Yes
107	No
79	Don't know
92	No answer

20. Total income:

9	Less than $1000 for year
26	$1000 to $1999
22	$2000 to $2999
22	$3000 to $3999
18	$4000 to $4999
7	$5000 to $5999
3	$6000 to $7999
1	$8000 to $9999
0	More than $10,000
99	Don't know
88	No answer

21. Last year (before the child entered the Head Start program), who took care of the child during the day?

109	Parent
5	Nursery
21	Baby sitter
23	Sibling
45	Other adult relative
4	Other (Specify)
88	No answer

22. Number of persons in the household:

0 2	21 5	29 8	9 11	1 14	2 17
8 3	28 6	25 9	12 12	2 15	1 18
15 4	31 7	25 10	3 13	0 16	0 Over 18

23. Number of Children under 16 in the household:

8 1	34 4	25 7	10 10	0 Over 12
17 2	34 5	20 8	1 11	
25 3	25 6	7 9	1 12	

24 Number of full term pregnancies of mother:

5 1	18 4	14 7	6 10	4 13	1 16
7 2	22 5	26 8	1 11	0 14	2 17
23 3	18 6	10 9	1 12	1 15	1 24

25. Number of children living of these:

5 1	23 4	22 7	14 10	0 13	0 16
15 2	24 5	25 8	2 11	1 14	0 17
24 3	24 6	8 9	5 12	0 15	1 24

26. Location of home of child:

203	Urban or suburban
10	Farm
3	Rural non-farm
1	Other
73	No answer

27. Respondent:

19	Both parents
153	Mother
10	Father
2	Guardian
1	Foster parent
37	Other
73	No answer

APPENDIX II

MEASURES OF SCHOOL ACHIEVEMENT OF LUBBOCK HEAD START CHILDREN IN COMPARISON WITH CONTROL CHILDREN IN THE 1965-1966 TERM

Part 1: OFFICIAL SCHOOL RECORDS:	HEAD START CHILD SUPERIOR	NO DIFFERENCE	CONTROL CHILD SUPERIOR
1. Grades assigned at the end of the first year of school - (N=295)	115	52	128
2. Citizenship grade during the first year of school - (N=251)	70	71	110
3. Regularity of attendance measured by number of absences-(N=295)	153	11	131
Part 2: EVALUATION BY THE CLASSROOM TEACHER (N=198)			
1. Which child was happier in school?	88	33	77
2. Which child participated more?	95	18	85
3. Which child created fewer problems for the teacher?	84	25	89
4. Which child was more regular in attendance?	102	14	82
5. Which child showed the greater desire to learn?	82	20	96
6. Which child made the greater educational accomplishment during the year?	92	16	90
7. Which child was further advanced at the end of the year?	94	16	88
8. Which child had the greater overall understanding?	86	17	95

APPENDIX III

AGREEMENT AMONG MEASURES OF SCHOOL ACHIEVEMENT IN APPENDIX II IN TERMS OF THE CONTINGENCY COEFFICIENT (C)

Official School Records				Evaluation by the Classroom Teacher							
	1	2	3	1	2	3	4	5	6	7	8
1	X	.3113	.2352	.3152	.4583	.2420	.2342	.4745	.5582	.6034	.5624
2	.3113	X	.0155	.1779	.1666	.3253	.1966	.2834	.2178	.2809	.2409
3.	.2352	.0155	X	.2352	.2447	.0950	.5728	.2840	.2509	.2228	.2414
1.	.3152	.1779	.2352	X	.6664	.4443	.3674	.5378	.3959	.4496	.4359
2.	.4583	.1666	.2447	.6664	X	.4070	.2955	.5838	.5603	.5765	.6057
3.	.2420	.3253	.0950	.4443	.4070	X	.2378	.5285	.3766	.4117	.3931
4.	.2342	.1966	.5728	.3674	.2955	.2379	X	.3259	.2714	.2832	.2879
5.	.4745	.2834	.2840	.5378	.5838	.5285	.3259	X	.6046	.6103	.6020
6.	.5582	.2178	.2509	.3959	.5603	.3766	.2714	.6046	X	.7573	.7236
7.	.6034	.2809	.2228	.4496	.5765	.4117	.2832	.6103	.7573	X	.7398
8.	.5624	.2409	.2414	.4359	.6057	.3931	.2879	.6020	.7236	.7398	X

APPENDIX IV

MEASURES OF SCHOOL ACHIEVEMENT OF 140 LUBBOCK HEAD START CHILDREN IN COMPARISON WITH 140 CONTROL CHILDREN DURING TWO SCHOOL YEARS

OFFICIAL SCHOOL RECORDS:		HEAD START CHILD SUPERIOR	NO DIFFERENCE	CONTROL CHILD SUPERIOR
1. Grades assigned during the School year A(n=140)	1965-66	47	32	61
B(n=140)	1966-67	56	27	57
$\chi^2 = 1.3457$				
$p > .30$, 2 df				
2. Citizenship grade during the School year A(n=119)	1965-66	27	47	45
B(n=140)	1966-67	51	35	54
$\chi^2 = 8.3107$				
$p < .02$, 2 df				
3. Regularity of attendance A(n=140)	1965-66	68	6	66
B(n=140)	1966-67	64	5	71
$\chi^2 = .3945$				
$p > .80$, 2 df				

APPENDIX V

MEASURES OF SCHOOL ACHIEVEMENT OF 140 LUBBOCK HEAD START CHILDREN IN COMPARISON WITH 140 CONTROL CHILDREN IN THE 1966-1967 TERM

	MEASUREMENT USED:	HEAD START CHILD SUPERIOR	NO DIFFERENCE	CONTROL CHILD SUPERIOR
4.	S.R.A. Reading Test (n=107)	40	13	54
5.	S.R.A.Arithmetic (n=107)	49	10	48
6.	Promotion to the Next Grade (n=107)	16	112	12
7.	Sociogram - Number of times chosen (n=140)	63	11	66
8.	Sociogram - Number of choices made (n=140)	68	11	61
9.	Minimum Socialization Scale	68	19	53

APPENDIX VI

AGREEMENT AMONG MEASURES OF SCHOOL ACHIEVEMENT IN APPENDICES IV AND V IN TERMS OF THE CONTINGENCY COEFFICIENT (C)

Appendix IV				Appendix V					
	1B	2B	3B	4	5	6	7	8	9
1B	-	.4003	.1649	.3867	.4030	.4242	.1083	.1991	.1850
2B	.4003	-	.1042	.2176	.2993	.3089	.2116	.2185	.1430
3B	.1649	.1042	-	.2626	.1561	.1924	.2037	.1430	.1342
4	.3867	.2176	.2626	-	.5723	.2324	.2304	.1848	.1593
5	.4030	.2993	.1561	.5723	-	.3748	.2978	.2097	.2504
6	.4230	.3089	.1924	.2324	.3748	-	.1066	.1053	.1653
7	.1083	.2116	.2037	.2304	.2978	.1066	-	.1162	.1174
8	.1991	.2185	.1430	.1848	.2097	.1053	.1162	-	.1650
9	.1850	.1430	.1343	.1593	.2804	.1653	.1174	.1650	-
1A	.3740	.2051	.2481	.2722	.3800	.3207	.1531	.2681	.2108
2A	.2205	.2483	.1539	.2369	.2752	.0806	.2245	.1593	.1255
3A	.2129	.1336	.3750	.1506	.1415	.2051	.0662	.2178	.1495

(The numbers at the top and left of the page refer to the measures of achievement by the Head Start children presented on the two preceeding pages.)

APPENDIX VII

Miscellaneous Tables

TABLE XXVII

SEX DISTRIBUTION OF HEAD START AND CONTROL CHILDREN BY ABSENCES BELOW AND ABOVE THE MEAN

Sex	ABSENCES IN 1966-1967			
	Head Start Children		Control Children	
	Below Mean	Above Mean	Below Mean	Above Mean
Male	51 (59.3%)	24 (44.4%)	48 (56.5%)	27 (49.1%)
Female	35 (40.7%)	30 (55.6%)	37 (43.5%)	28 (50.9%)
Total	86 (100%)	54 (100%)	85 (100%)	55 (100%)
	$\chi^2 = .0010$		$\chi^2 = .3519$	
	$p > .90$, 1 df		$p > .50$, 1 df	

When the totals above are compared in terms of Head Start and control differences.

$\chi^2 = .01501$

$p > .90$, 1 df

TABLE XXVIII

SEX DISTRIBUTION OF HEAD START AND CONTROL CHILDREN BY GRADES BELOW AND ABOVE THE MEAN

	Grades for 1966-1967			
	Head Start Children		Control Children	
	Below Mean	Above Mean	Below Mean	Above Mean
Male	34 (54.8%)	41 (52.6%)	33 (57.9%)	42 (50.6%)
Female	28 (45.2%)	37 (47.3%)	24 (42.1%)	41 (49.4%)
Total	62 (100%)	78 (100%)	57 (100%)	83 (100%)
	χ^2 = .0719		χ^2 = 0.7225	
	p > .70 , 1 df		p > .30 , 1 df	

	Citizenship Grades for 1966-1967			
	Head Start Children		Control Children	
	Below Mean	Above Mean	Below Mean	Above Mean
Male	23 (59.0%)	52 (51.5%)	23 (62.2%)	52 (50.5%)
Female	16 (41.0%)	49 (48.5%)	14 (37.8%)	51 (49.5%)
Total	39 (100%)	101 (100%)	37 (100%)	103 (100%)
	χ^2 = .6345		χ^2 = 1.4922	
	p > .30 , 1 df		p > .20 , 1 df	

TABLE XXIX

SEX DISTRIBUTION OF HEAD START AND CONTROL CHILDREN BY SRA SCORES BELOW AND ABOVE THE MEAN

	S.R.A. Scores on Reading			
	Head Start Children		Control Children	
	Below Mean	Above Mean	Below Mean	Above Mean
Male	24 (44.4%)	35 (60.3%)	23 (53.2%)	34 (51.5%)
Female	30 (55.6%)	23 (39.7%)	21 (46.8%)	32 (48.5%)
Total	54 (100%)	58 (100%)	44 (100%)	66 (100%)
	$\chi^2 = 2.8361$		$\chi^2 = .0061$	
	$p > .05$, 1 df		$p > .90$, 1 df	

	S.R.A.Scores on Arithmetic			
	Below Mean	Above Mean	Below Mean	Above Mean
Male	22 (44.0%)	37 (59.7%)	23 (50.0%)	34 (53.1%)
Female	28 (56.0%)	25 (40.3%)	23 (50.0%)	30 (46.9%)
Total	50 (100%)	62 (100%)	46 (100%)	64 (100%)
	$\chi^2 = 2.7290$		$\chi^2 = .1047$	
	$p > .05$, 1 df		$p > .70$, 1 df	

APPENDIX VIII

HEAD START EVALUATION SCHEDULE

STUDENT_____ SCHOOL_____ #_____

OBJECT VOCABULARY: IDENTIFICATION	OBJECT	RECOGNITION
_____	CUP	_____
_____	JACKS	_____
_____	GLASSES	_____
_____	DOG	_____
_____	STRAWBERRIES	_____
_____	CANDY	_____
_____	ROOSTER	_____
_____	THREAD	_____
_____	COMB	_____
_____	CLOTHSPIN	_____
_____	PLANE	_____
_____	PIPE	_____
_____	HAMMER	_____
_____	RED BLOCK	_____
_____	BLUE BLOCK	_____
_____	YELLOW BLOCK	_____
_____	PENCIL	_____

INCIDENTAL INFORMATION:

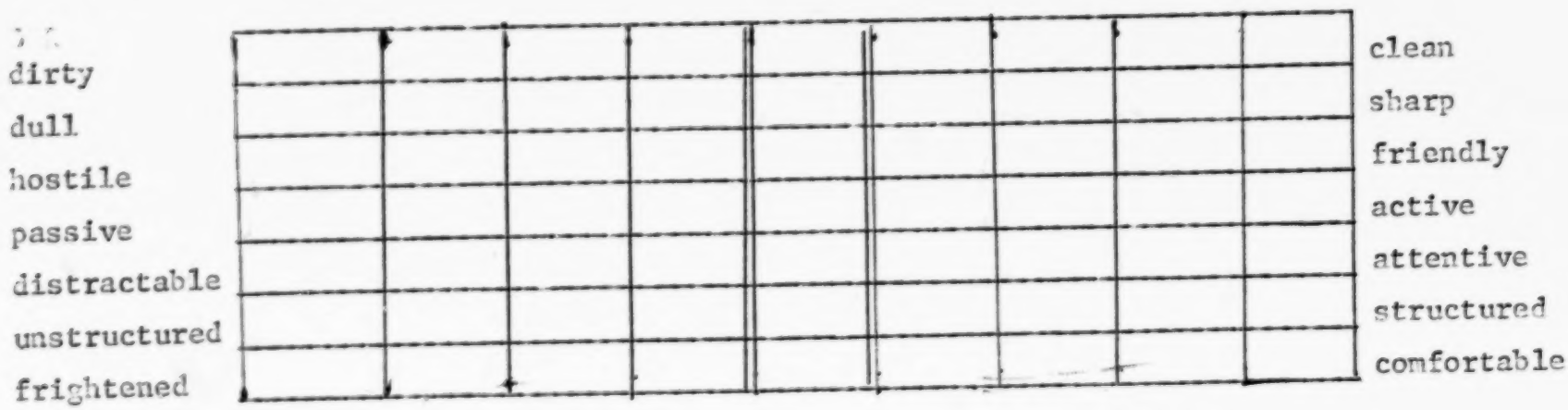
_____ What is your mother's name?
_____ What is your father's name?
_____ What does your father do?
_____ What does your mother do?
_____ When is your birthday?
_____ When is Christmas?
_____ How long is summer vacation?
_____ What animal do you like best?
_____ What do you like best about school?
_____ What is your teacher's name?
_____ Who is the President?
_____ On what street do you live?
_____ What is your principal's name?
_____ In what state do you live?
_____ In what city do you live?

HEAD START - p. 2

NERVOUS SYSTEM: -- = absent
m = moderate
s = severe

_____ stuttering
_____ fidgeting
_____ standing up
_____ nail chewing
_____ pencil chewing
_____ thumb sucking
_____ hair twisting
_____ crying
_____ manipulating objects
_____ finger tapping
_____ foot tapping and swinging
_____ foot twining
_____ hand clasping behind head
_____ body stiffness
_____ clothes tugging
_____ lip chewing
_____ nose picking
_____ sex play
_____ other rubbing
_____ scratching head
_____ face twitching
_____ gesticulating
_____ flushing and perspiring
_____ trembling
_____ scratching body
_____ hand wringing

OVERALL RATING:



M I N I M U M S O C I A L I Z A T I O N S C A L E

(Check with a + or - for yes or no.)

____ "Hi, I am Miss_____." (Does he give his name or respond in any way?)

____ Extend your hand. Does he?

____ Sit down. Does he take a remote or close chair without being asked?
Remote____ Close____

____ Does he bring the chair closer?

____ Tell some standardized joke. Does he laugh at the joke?

____ Does he respond in the interview more than yes or no?

____ Does he start a new meaningful topic?

____ Does he stray from the topic?

____ Reaction to 30 seconds of silence: Score as follows_____

+ equals a meaningful break into the silence

-1 equals confusion [eliminated from scoring].

- equals no reaction (a rating intermediate between the above).

____ Stand up at end of interview. Does he?

____ Say "Goodbye." Does he?

_____ total the number of ='s; if the score on the silence question is "-1" substract 1 from the total number of +'s.